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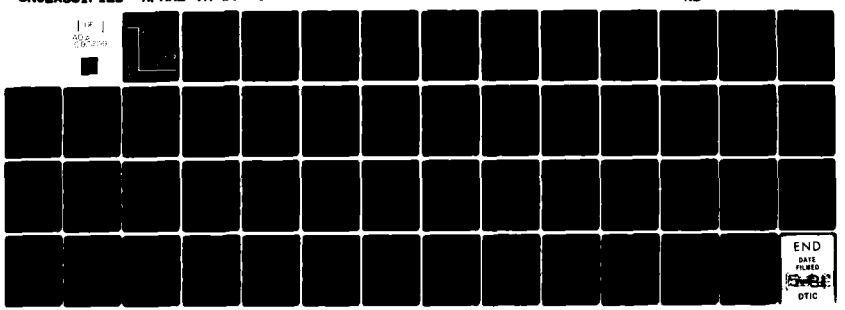

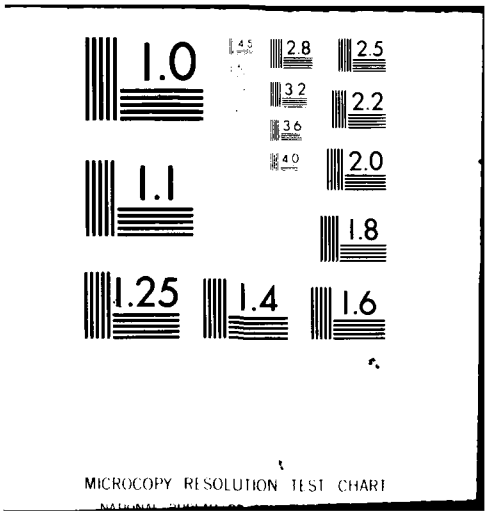
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LEVEL II

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AIR FORCE HUMAN RESOURCES LABORATORY

AD A097209

INTRODUCTION OF WOMEN INTO TITAN II MISSILE OPERATIONS

By

Dana R. Ideen, Capt, USAF
Jeffrey E. Kantor

MANPOWER AND PERSONNEL DIVISION
Brooks Air Force Base, Texas 78235

March 1981
Interim Report for Period November 1978—January 1980

AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235

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This interim report was submitted by the Manpower and Personnel Division, under Project 7719, with HQ Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base, Texas 78235. Capt Dana R. Ideen (MODF) was the Principal Investigator for the Laboratory.

This report has been reviewed by the Office of Public Affairs (PA) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

NANCY GUINN, Technical Director
Manpower and Personnel Division

RONALD W. TERRY, Colonel, USAF
Commander

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performance of women in military
physical capabilities of women
Titan missile
training of women in military
women in combat roles
women in military

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

The objectives of this research were to evaluate the performance of the initial women entering Air Force Titan II launch career fields and to determine if women encounter any gender specific problems during Titan II operations. The women entering these fields, and their male peers, were surveyed during each stage of training and after accruing experience in the operational missile squadrons. Additionally, both academic and simulator training performance scores, operational upgrade scores, and operational supervisory evaluations were obtained on these personnel. With only one exception (on the rating of instructor efficiency, where men rated the instructors higher than did women), no significant differences were found between men's and women's perceptions of the training experience or performance in training. In the operational missile squadrons, the only area in which men and women crew members differed was on the number of women that they indicated could be assigned to a crew if that crew was to be able to

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handle all the physical requirements of the job. The operational supervisors also indicated that they had some concern about this issue, but did rate the training and overall performance of men and women as equal. Overall, very few differences were found between men and women concerning their attitudes, perceptions, and performance in Titan II training and operations.

SUMMARY

Objective

The objective of this research was to compare the performance, job relevant attitudes, and types of problems experienced by men and women in Titan II operations training and in operational missile squadrons.

Background

The Manpower and Personnel Research Division, Air Force Human Resources Laboratory (AFHRL), initiated this research at the request of the Air Force Manpower and Personnel Center (AFMPC), Randolph AFB, TX. The research was begun concurrently with the introduction of the first women to the Titan II Launch career fields. Interviews were conducted, surveys disseminated, and performance data collected from Titan II training and operational squadrons as part of a cooperative effort between AFHRL, the Palace Missile Assignments Section of AFMPC, the Strategic Air Command, and the Air Training Command.

Approach

The subjects of this research were the first women assigned to Titan II Launch Operations career fields (N=21) and their male peers and supervisors (N=109). Four types of comparative data were collected. Surveys designed to capture the attitudes of students towards training were administered during each stage of missile operations training. Also from training, academic and simulator training performance scores were obtained. After the women had been in their operational squadrons for approximately 5 months, surveys designed to collect assessments of abilities, performance, and attitudes toward work were administered to the women, their male peers, and their supervisors. Finally, initial operational squadron upgrade scores were obtained for the women crew members and their male peers.

Specifics

With only one exception, no significant differences were found between men and women during training for the Titan II career field. The one exception was that men rated their instructors significantly higher on "instructor efficiency" than did the women. Other perceptions of the training environment and attitudes about training were not found to differ between men and women. Additionally, academic and simulator training performance measures were found to be similar for both sexes and above the training requirements.

Data collected from the operational Titan II squadrons showed that men and women were in agreement concerning their perceptions of the missile squadron environment and their attitudes toward the missile career field and the Air Force. Also, in-unit upgrade evaluation scores indicated no significant differences between men and women and no difficulties in performing the job. On the job, the men and women crew members were found to differ in only one aspect, their estimate of the number of women that could be assigned to a four member crew and still have that crew handle all the physical requirements of the job. While 70% of the women crew members thought that all four members on the crew could be women, it appears that a large group of the men felt that assigning more than two women to a four member crew would decrease that crew's capability to handle the physical requirements. Responses on the supervisor survey also indicated that the supervisors had some concern about this issue. These results pointed to a need to examine the physical requirements of these AFSC's and such an evaluation is in progress.

Other results from the supervisor survey indicated no other areas of substantial concern, and supervisors rated men and women equally with respect to training and overall performance.

Conclusions

Comparative data gathered from the women and men in Titan II training and operational missile squadrons, from their supervisors, and their unit upgrade performance records indicate that there are few differences between men and women in the Titan II Launch career fields. Overall, it appears that women have been successfully introduced into Titan II operations and have become successful and effective missile crew members.

PREFACE

This research was requested 25 May 1978 by the Air Force Manpower and Personnel Center (AFMPC) as a portion of an evaluation of female personnel utilization in pilot, navigator, and missile launch career fields (RPR 78-09). The Personnel Research Division, which has now become the Manpower and Personnel Division of the Air Force Human Resources Laboratory, was responsible for the analyses, recommendations, and conclusions made in this report.

The authors wish to express their appreciation to Captain Barry Shade and Major Dan Flournoy, AFMPC PALACE Missile, for their extensive interview notes and their invaluable cooperation and expertise. Also, the authors are grateful to those Titan II personnel who took time to respond to the many surveys, especially those personnel assigned to the missile wings at Davis-Monthan, Little Rock, and McConnell Air Force Bases.

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INTRODUCTION OF WOMEN INTO TITAN II MISSILE OPERATIONS

I. INTRODUCTION

During the 1970's, the Air Force decided to open to women many occupational fields that had been traditionally staffed only by men. (For a background and literature review of how women in the military are being integrated into traditional "male" occupations see *Utilization of Women in Industrial Career Fields*, by Polit, Nuttall, & King, 1979.) On 23 September 1977, the Air Force Chief of Staff directed that Air Force Specialty Codes (AFSCs) 1821F, 1823, and 1825 for officers and 316X0F and 541X0E for enlisted personnel be opened to women. Personnel in those fields are responsible for the maintenance and launch operations of the Titan II intercontinental ballistic missile (ICBM) fleet.

The Air Force Manpower and Personnel Center (AFMPC) at Randolph AFB, requested that the Air Force Human Resources Laboratory (AFHRL) undertake a research program to assess the introduction and utilization of women into these AFSCs. This program would track and evaluate the performance of women during the initial phases of their being introduced into these fields. The performance of women, both in training and in the operational missile squadrons was to be monitored to determine if they encountered different problems than did men while conducting Titan II operations. To accomplish these objectives, a research plan was developed (a) to survey male and female Titan II students in each stage of training, (b) to obtain training performance scores on these students, (c) to survey these people and their supervisors after they were assigned to their operational units, and (d) to obtain initial unit performance scores for these women and their male peers.

II. METHOD

Subjects

The subjects of this research were (a) the first women assigned to Titan II training and operational units and (b) their male co-students and peers. The number of women tested (n = 12 to 21) varied somewhat throughout the study due to the availability of the women, as affected by Air Force personnel assignment policies, and attrition. The number of men tested (n = 43 to 109) also varied due to the number available in the training class and the type of data being collected.

Data Collection

Data were obtained on Air Force personnel from both training and assigned units, including the first group of women ever to enter Titan II operations. The introductory technical training was done at Sheppard AFB, and the combat crew training was done at Vandenberg AFB. The Technical Training Student Survey (Figure 1) and the Missile Crew Member Survey (Appendix B) were administered to all of the women officers and enlisted personnel, as well as to their male peers in these classes. The Technical Training Student Survey was developed to assess student attitudes in the following areas: (a) expectancies about the technical training experience, (b) importance of those expectancies, (c) instructor competence, (d) instructor-student relations, (e) perception of fellow students, (f) degree of organizational control, (g) degree of stress in the training environment, (h) quality of training materials, (i) perception of the physical setting, (j) satisfaction with the training experience, and (k) overall career choice (Kantor, Vitola, & Guinn, 1977).

The Missile Crew Member Survey was developed specifically for this study to assess the unique attitudes and problems associated with Titan II training. It contains many questions specific to Titan II training and duties, as well as items that measure relevant attitudes toward mental and physical abilities, *motivation, patience, and attentiveness.*

TECHNICAL TRAINING STUDENT SURVEY[a]
PE 7403
AIR FORCE HUMAN RESOURCES LABORATORY

SSAN

DATE: Yr. 19- ; Day ; Mo. JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

GENERAL INSTRUCTIONS:

1. The items contained on this form are designed to measure student attitudes toward Air Force technical training.
2. The form is intended to give you the opportunity to help improve student training.
3. It is very important that your answers reflect your true feelings. This is not a test and you are not required to put your name on the form.
4. Please carefully follow the instructions at the beginning of each of the four main sections of this form.

SECTION I:

1. Below are statements describing rewards a student might receive if he performs well in technical training.
2. Beside each statement are two separate rating scales.

   On Scale 1 indicate how likely it is for you to receive the reward if you perform well in training.

   On Scale 2 indicate how important the reward is to you. Consider only its importance, not how likely or unlikely you are to receive the reward.

3. Notice that each scale has five circles. The words above the scales describe the meaning of the circles at the ends of each scale. The three circles in the middle of each scale represent feelings between those described at the scale ends. You might want to think of each scale as similar to a thermometer lying on its side.

4. Answer each item by darkening one circle on each scale to indicate how you feel about the statement. Read each statement carefully and take all the time you need.

	SCALE 1: IF YOU PERFORM WELL Very Unlikely … Very Likely	SCALE 2: HOW IMPORTANT TO YOU Not Important … Very Important
1. Increased job security after graduating from technical school	m w	m w
2. Faster promotion	w m	wm
3. Greater chance to participate in important decisions after graduating from technical school	w m	w m
4. More challenging duty assignments after graduating from technical school	m w	m w
5. More job responsibilities after graduating from technical school	mw	mw
6. Greater chance of being skilled and competent in your career field	m w	mw
7. Increased chance of getting a good civilian job after Air Force service	mw	mw
8. Greater chance to be assigned to your base of choice	mw	wm
9. Increased off-duty privileges (for example, three-day passes or no squadron detail)	w m	w m
10. Greater freedom in deciding how to accomplish class work	m w	wm
11. Increased chance of being admired and respected by fellow students	w m	w m

ATC Form 1631, Jun 74

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[a]Men's mean score indicated by m; women's mean score indicated by w.

Figure 1. **Technical training student survey**[a].

SECTION I:

	SCALE 1: IF YOU PERFORM WELL Very Unlikely — Very Likely	SCALE 2: HOW IMPORTANT TO YOU Not Important — Very Important
12. Instructors pay more attention to your ideas and suggestions		
13. Increased educational growth and development		
14. Greater chance to help other students learn the subject matter		
15. Greater chance to do better on tests and receive better grades		
16. Receive compliments, recognition and praise from instructors		
17. Fewer "Mickey Mouse" duties in the Squadron		
18. Fewer "Mickey Mouse" assignments in class		
19. Feeling of self-respect and sense of accomplishment		
20. Increased opportunity to use your abilities		
21. Receive more challenging class assignments		
22. Greater opportunity to study subject matter of special interest to you		
23. Increased chance of completing training ahead of schedule		
24. Provided with more spare time		
25. Instructors less critical of your work		
26. Increased chance of being an "Honor" graduate		

SECTION II:

1. Please use the scales below to describe your SSAN of main (lead) instructor.
2. Darken the one circle on each scale that best expresses your feelings.

27. Ineffective — Effective	34. Unprepared — Prepared	41. Considerate — Inconsiderate
28. Knowledgeable — Ignorant	35. Intelligent — Stupid	42. Hinders — Helps
29. Boring — Interesting	36. Inefficient — Efficient	43. Friendly — Unfriendly
30. Dependable — Undependable	37. Encourages — Discourages	44. Supportive — Hostile
31. Disorganized — Organized	38. Criticizes — Praises	45. Ridicules — Compliments
32. Unsure — Confident	39. Fair — Unfair	46. Cooperative — Uncooperative
33. Convincing — Unconvincing	40. Impatient — Patient	

GO TO THE NEXT PAGE

SSAN

SECTION III:

1. Below are a series of statements related to both your training and training environment.
2. Please darken the *one circle on each scale that best expresses your feelings.*

	Definitely Disagree				Definitely Agree
47. Certain students are hostile toward other class members			m	w	
48. Most students get along well together				wm	
49. Fellow students look out for each other			mw		
50. Certain students are uncooperative			m	w	
51. Certain students are responsible for petty quarrels and bad feelings among class members			m	w	
52. There are tensions among some students which interfere with training activities			m	w	
53. Certain students are incapable of working together			m	w	
54. Students help each other to learn the necessary course material				wm	
55. Some students are not liked or accepted by fellow students			mw		
56. Students have to take advantage of others in order to succeed in training		wm			
57. Students are given an equal opportunity to demonstrate their capabilities				mw	
58. Students are subject to strict discipline		mw			
59. Student training is too closely supervised		m w			
60. Students are encouraged to speak their minds even if it means disagreeing with the instructors			wm		
61. Students are encouraged to suggest improvements or solutions to training problems			w	m	
62. Students are encouraged to participate in classroom discussions				wm	
63. Students are given the opportunity to participate in class				wm	
64. Student suggestions and recommendations are considered with fairness			w	m	
65. Students are seldom able to use their own judgment		m w			
66. Students have no say about what happens to them		m	w		
67. Students have little chance to influence the way the class is conducted			m w		
68. Students have the freedom to establish their own study schedules			w	m	
69. Spare time in class may be spent as each student sees fit			w	m	
70. Students are rarely given the chance to freely express their ideas in the classroom		mw			

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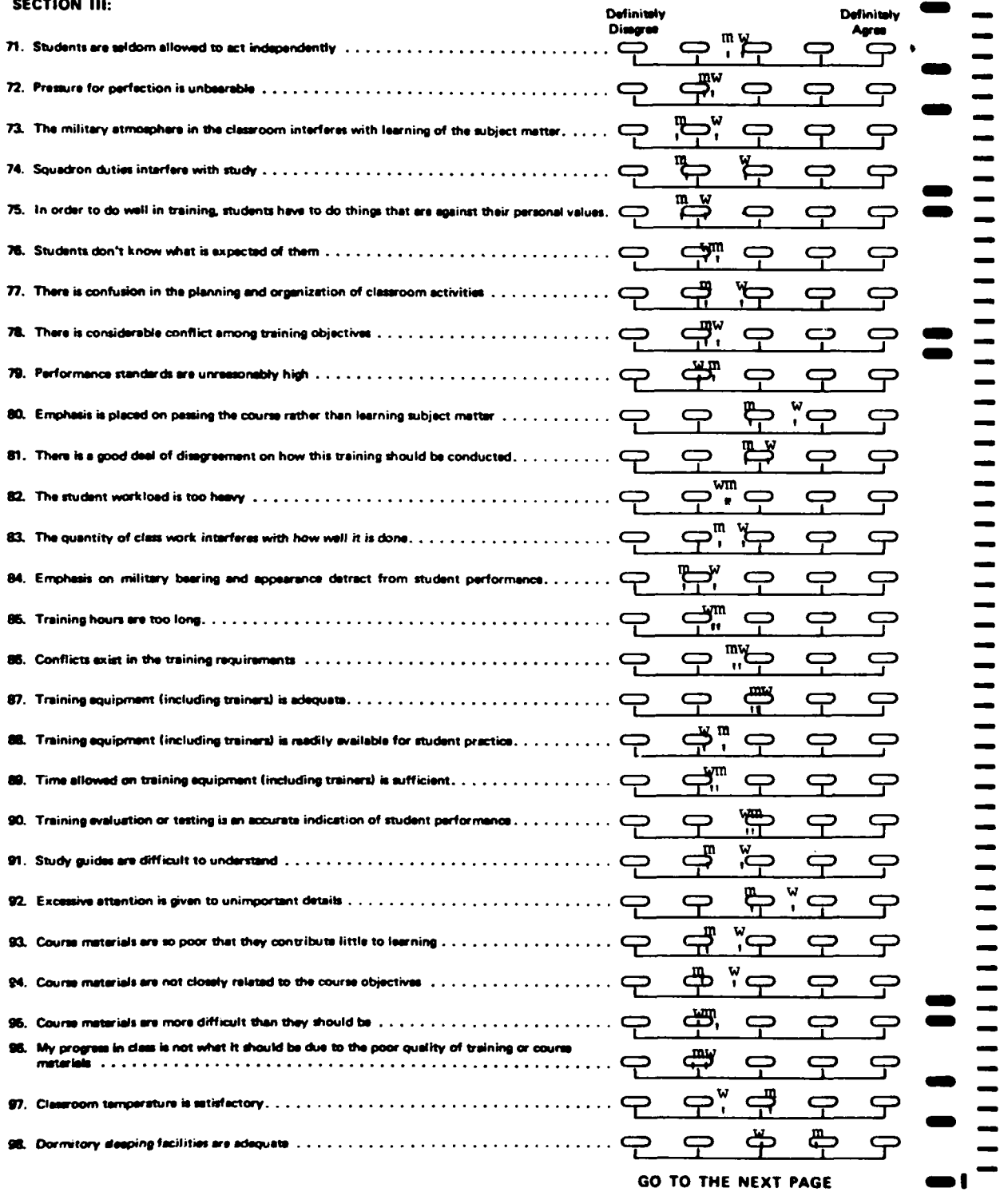
SECTION III:



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SSAN

SECTION III:

	Definitely Disagree				Definitely Agree
99. Classroom lighting is adequate				mw	
100. Classroom chairs are comfortable			w	m	
101. Classroom seating arrangement is satisfactory			w	m	
102. Length of class breaks is about right			w	m	
103. Number of class breaks is sufficient			w	m	
104. Study facilities outside the classroom are adequate			wm		
105. Classroom ventilation is about right		w	m		
106. Time allowed for testing is sufficient				wm	
107. Classroom noise control is effective			wm		
108. Classroom work space is sufficient (desk or table top area)			w	m	
109. Supplementary study materials (manuals, regulations, technical orders, etc.) are readily available for student use			w	m	
110. Base recreation facilities are adequate			wm		
111. Off duty study time is sufficient			wm		
112. Time allowed for review of tests is adequate			w	m	
113. Enough training time is spent on difficult and important subject matter		w	m		
114. Some students would perform better on a different shift			w	m	

SECTION IV:

1. Below are statements about your satisfaction with your training and career field.
2. Please darken the circle that best expresses your feelings about the statement in the same way you have in the other sections of this form.

	Completely Dissatisfied				Completely Satisfied
115. How do you feel about your technical training?			wm		
116. How do you feel about your assigned career field?				mw	
117. How do you feel about the Air Force?				w	m

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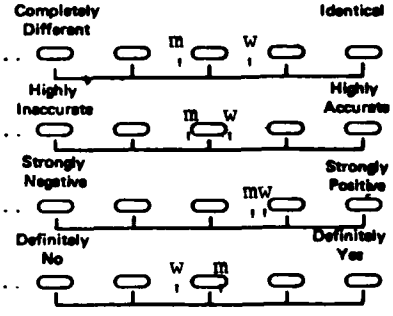
SECTION IV:



118. How similar is your assigned career field to your preferred career field? . . . . . .

119. How accurate was the information you received about your career field before entering technical training? . . . . . .

120. What effect has technical training had on your feelings about your career field? . . . . . .

121. If you have the chance, will you change to another career field? . . . . . .

REMARKS:

In order to identify any areas that could not be expressed readily on a survey, field interviews were conducted by members of the AFMPC missile assignments team (MPC PALACE Missile). Since these interviews identified no significant problems for women integrating into Titan II operations, they were terminated in March 1979.

After training, when the women had been at their assigned units for a minimum of 6 weeks (although most had been there much longer), the Missile Launch Career Field Survey (Appendix C) and Missile Launch Career Field Supervisor Survey (Appendix D) were administered. The former survey was developed to measure the attitudes of individuals in Titan II operations concerning (a) expectancies about the Titan II job, (b) peer and supervisory relations, (c) equal treatment, facility, and clothing acceptability, (d) spouse support, (e) physical requirements of the job (including gender specific aspects, e.g., pregnancy effects), (f) reasons for entering the missile career field, (g) plans to remain in the missile career field, (h) plans to remain in the Air Force, (i) job stress, and (j) quality of training for missiles.

The Missile Launch Career Field Supervisor Survey was developed to measure supervisory attitudes toward (a) the physical ability of the women to do the job, (b) the number of women that supervisors felt should be on a missile launch or missile maintenance team, (c) the comparability in quality of training of women and men, (d) the motivation of women versus men, (e) the performance under stress of women versus men, and (f) the overall performance of women versus men in the Titan II career field.

The Missile Launch Career Field Survey was mailed to each woman who had completed training and to randomly selected male peers of these women. The Missile Launch Career Field Supervisor Survey was mailed to the supervisors of these personnel at the Air Force bases where the women had been assigned: McConnell, Little Rock, and Davis-Monthan. All surveys were completed anonymously. Also, at the three Titan II bases, performance scores for the unit checkout and evaluation tests were obtained for the women and the group of men who had been evaluated during the same period of time.

Statistical Procedures

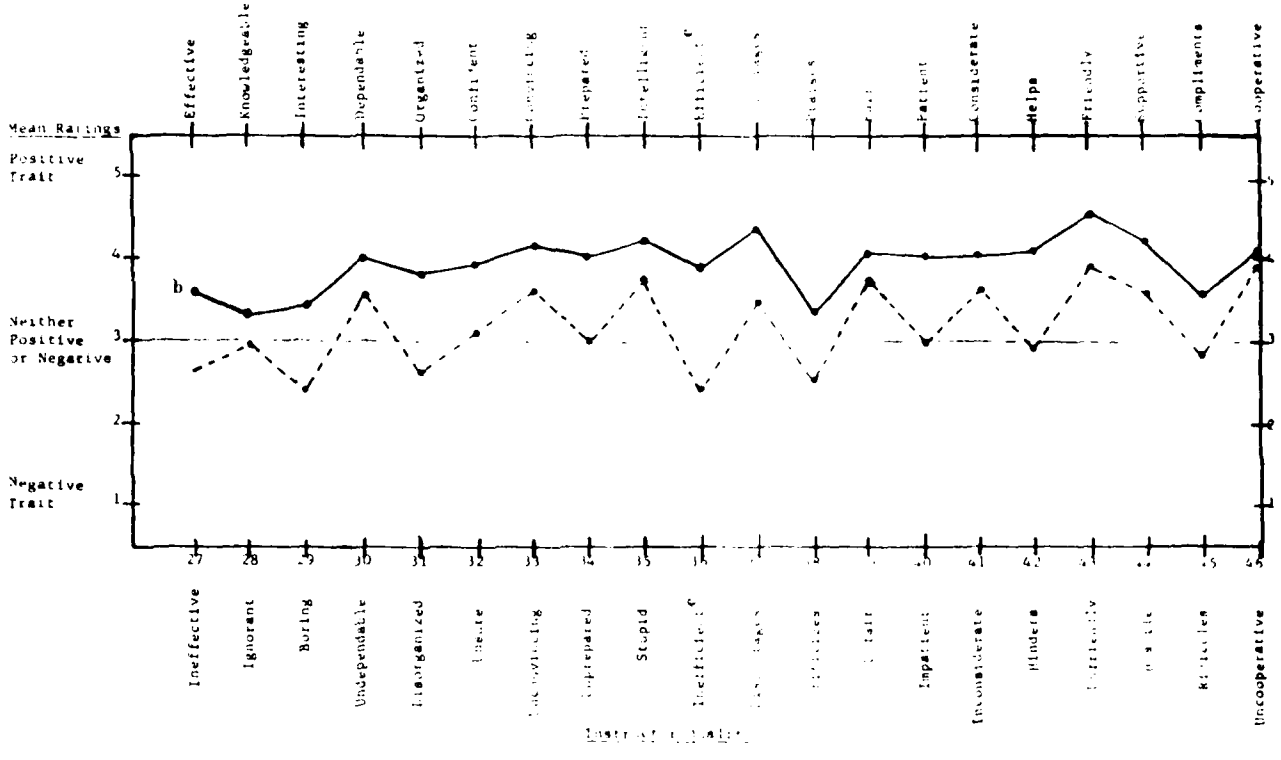
Due to the small sample sizes, the officer and enlisted data were combined for the Technical Training Student Survey and the Missile Crew Member Survey, both of which were administered during training. All questions on these surveys were equally applicable for officers and enlisted personnel. On all of the surveys, differences between responses were evaluated for statistical significance controlling Type I error (α) per family of comparisons. For items amenable to "t" testing, the Bonferroni technique was used. The Bonferroni technique is particularly useful when testing among large numbers of items since the Type I (α) error rate is held constant regardless of the number of comparisons or degree of interdependency (Miller, 1966). For categorical response items, chi-square tests (χ^2) were used with the α value for each comparison equal to .05 divided by the number of comparisons in that family. Overall, these procedures resulted in a relatively conservative statistical evaluation, unlikely to falsely indicate a difference as being significant when actually that difference had occurred because of chance variation only.

III. RESULTS AND DISCUSSION

In-Training Evaluation

To compare male and female student impressions of the training environment, the Technical Training Student Survey was administered after the completion of the Sheppard AFB missile training and prior to the final training at Vandenberg AFB. The results of this survey are summarized in Figure 1, and the item means and standard deviations are presented in Appendix A. The only statistically significant difference between the male and female responses was on the item describing instructor efficiency (36),

where the women rated the instructor as less efficient than did the male students. It is interesting that although none of the other instructor evaluation items revealed statistically significant differences, a non-significant trend was for women to rate the instructor more critically across all evaluations (Figure 2). It should be noted that all instructors were men since the women students were the first to enter the career field. Also, since the women were all volunteers from active duty in other career fields, they had some previous experience in Air Force training programs, but most of the men did not. It is also important to note that no significant gender differences were found in some areas where a priori consideration anticipated differences (i.e., expectancies about training, student relationships, degree of stress experienced, and satisfaction with training and career choice). With the one noted exception concerning instructors, male and female impressions of the training environment were quite similar.



[a]Some of the scales on this figure were reversed so that low ratings would be indicated on the bottom of the figure and better ratings at the top. Note the survey design, Appendix A.

[b]male: ●——●
female: ●– –●

[c]Significant difference, $p < .05$.

Figure 2. **Technical training student survey-student ratings of instructor[a] (Questions 27–46).**

While the previous survey was designed to evaluate technical training in general, the Missile Crew Member Survey was designed to identify gender differences related to Titan II training, specifically, and the personal characteristics important to missile crew functions. The results of the Missile Crew Member Survey, administered at the conclusion of combat crew training at Vandenberg AFB, are summarized in

Table 1. No statistically significant differences were found between the responses of the male and female missile students. Men and women thought the training equally difficult and spent similar hours studying and in remedial training. They held similar attitudes about being in the missile career fields and judged equally their capabilities to handle the job, including physical strength, crew coordination, attention to detail, and ability to react quickly. Also, it is important to note that males and females rated equally their acceptance by peers and instructors.

Table 1. **Titan II Missile Crew Member Survey: Women vs. Men**

Item	Women (n = 17)		Men (n = 43)		
	Mean	SD	Mean	SD	t[a]
1. Age	2.82	.81	2.14	.74	3.00
2. Sex[b]					
3. Rank					
4. Previous AFSC					
5. Years service	1.41	.62	1.21	.60	1.19
6. Geographic area last assignment					
7. Technical Orders	1.82	.81	1.77	.68	.23
8. Communications	1.76	.97	1.81	.70	-.19
9. Launch/checkout	1.88	.99	1.74	.79	.52
10. Complex power	2.12	1.17	1.98	.86	.45
11. EWO procedures	2.12	.86	1.91	.89	.84
12. Readiness monitoring	1.71	1.05	1.33	.68	1.46
13. Normal procedures	1.59	1.00	1.51	.80	.30
14. Emergency procedures	2.18	1.13	1.95	.82	.76
15. EWO	1.82	1.07	1.65	.78	.60
16. Hours study	2.47	1.01	2.44	1.08	.10
17. Hours remedial[c]	1.20	.77	1.75	1.02	2.26
18. Hours remedial class[c]	1.56	.96	1.88	1.07	1.55
19. T.O.s and publications	1.41	.94	1.19	.39	.93
20. IQT workbook	2.18	1.07	1.86	1.08	1.04
21. MPT study	1.59	1.12	1.47	.88	.40
22. IQT academics	1.29	1.10	1.28	.45	.04
23. Missile procedures trainer	1.12	.93	1.02	.34	.43
24. Audiovisual training	1.94	1.20	1.49	.51	1.49
25. Instructor techniques	1.18	1.01	1.40	.49	-.86
26. Instructor personality	1.24	1.03	1.53	.83	-1.04
27. Several instructors	1.59	1.28	1.72	.80	-.39
28. Student help	1.82	1.01	2.00	1.00	-.62
29. Attitude toward career	2.06	1.39	1.79	.91	.74
30. Attitude toward instructor	2.12	1.05	1.98	.74	.50
31. Potential	1.94	1.25	1.65	.92	.87
32. Background	3.35	1.50	3.26	1.24	.22
33. Performance	2.53	1.28	2.42	1.12	.31
34. Attitude toward IQT	1.71	1.05	1.67	.78	.14
35. Instructor acceptance	1.82	.95	2.30	1.06	-1.71
36. Student acceptance	2.35	1.22	2.33	1.13	.06
37. Education opportunity	1.76	.75	1.28	.50	2.43
38. Geographic area	2.35	.70	1.93	.70	2.09
39. Career enhancement	1.35	.61	1.33	.56	.12
40. Responsibility	1.71	.59	1.49	.55	1.33

Table 1. (*Continued*)

Item	Women (n = 17) Mean	SD	Men (n = 43) Mean	SD	t[a]
41. Comments					
42. Physical strength	2.00	.50	1.60	.49	2.81
43. Crew coordination	1.71	.59	1.51	.51	1.23
44. Technical information	1.76	.44	1.53	.55	1.70
45. Mental alertness	1.71	.69	1.51	.51	1.08
46. Resourcefulness	1.76	.44	1.58	.59	1.29
47. Attention to detail	1.71	.47	1.60	.54	.78
48. Prudence	1.71	.47	1.67	.52	.29
49. Patience	1.82	.53	1.51	.51	2.06
50. Safety conscious	1.59	.51	1.35	.48	1.67
51. T.O. exercises	1.76	.66	1.60	.54	.89
52. Communications	2.00	.61	1.70	.67	1.67
53. Launch/checkout	1.59	.62	1.70	.67	-.61
54. Complex power	2.12	.49	1.77	.65	2.26
55. EWO procedures	1.59	.51	1.65	.65	-.38
56. Readiness monitoring	1.53	.72	1.30	.56	1.18
57. Normal procedures	1.47	.72	1.37	.58	.51
58. Emergency procedures	1.65	.79	1.65	.65	.00
59. EWO phase	1.47	.80	1.58	.70	-.50

Note. For a complete listing of each item and the corresponding response options, see Appendix B.

[a] $T_{crit} = 3.49$, $p = .05$, $df = 58$, * $c = 53$.

[b] These items (2, 3, 4, 6, & 41) are not amenable to T-test comparisons.

[c] For purposes of analysis on these items, responses were recorded d = 1, a = 2, b = 3, and c = 4.

Student training test scores were collected from all academic areas (weapons system orientation; *maintenance management, electronics principles, and technical publications; facility systems and missile* systems; launch control and checkouts; communication; integrated systems and malfunction analysis) and from the Initial Qualification Tests (IQT), including the Emergency War Order test (EWO) evaluations. Only academic scores were collected at Sheppard AFB (Table 2). At Vandenberg AFB, there are two phases of training: the academic phase and IQT the phase. In both the academic phase (Table 3) and IQT phase (Table 4), there are academic scores and EWO scores. All EWO evaluations are conducted in a simulator environment, where the student is tested on the Titan II procedures and operations which would be used during an actual launch. These simulations are high fidelity representations of the operational environment of a launch crew. All academic scores, and EWO evaluations are scored on a standard percentage (0 to 100%) scale. The data from these evaluations are summarized in Tables 2 through 4 for officers and Tables 5 and 6 for enlisted personnel. There were no significant differences found between the male and female students on any of these training measures. It would appear from these data that the performance of women is equal to that of men in Titan II training, both academically and during the "hands-on" simulator training and testing.

Table 2. **Sheppard AFB Titan II Technical Training Academic Scores for Officers: Women vs. Men**

Academic Area	Women (n = 12)		Men (n = 59)		t ratio[a]
	Mean	SD	Mean	SD	
Weapons System Orientation	96.33[b]	3.28	95.58	4.74	.66
Maintenance Management, Electronics Principles, Technical Publications	97.00	2.63	94.64	5.27	2.31
Facility Systems	92.25	4.61	93.20	5.80	-.62
Missile Systems	96.67	2.90	94.88	3.76	1.92
Launch Control and Checkout	87.17	7.83	90.95	7.43	-1.54
Communication	90.58	6.42	91.51	6.65	-.46
Integrated Systems and Malfunction Analysis	98.00	2.70	96.10	4.57	1.94
Overall Average	94.50	3.23	93.64	4.31	-.13

[a]Bonferroni T_{crit} = 2.82, p = .05, df = 69, # c = 8.
[b]All academic scores throughout this report are on a standard zero to 100% scale.

Table 3. **Vandenberg AFB Academic Scores for Officers: Women vs. Men**

	Women (n = 14)		Men (n = 58)		t ratio[a]
	Mean	SD	Mean	SD	
Academic Average	93.93	4.32	93.93	4.28	0.00
Emergency War Order (EWO) Test	96.86	3.61	95.00	5.45	1.55

[a]Bonferroni T_{crit} = 2.29, p = .05, df = 70, # c = 2.

Table 4. **Vandenberg AFB Initial Qualification Test (IQT) Scores for Officers: Women vs. Men**

	Women (n = 12)		Men (n = 89)		t ratio[a]
	Mean	SD	Mean	SD	
Academic Average	94.67	2.77	94.32	4.03	.39
Emergency War Order (EWO) Test	97.17	3.19	96.00	5.02	1.10

[a]Bonferroni T_{crit} = 2.27, p = .05, df = 99, # c = 2.

Table 5. **Vandenberg AFB Academic Scores for Enlisted Personnel: Women vs. Men**

	Women (n = 17)		Men (n = 36)		
	Mean	SD	Mean	SD	t ratio[a]
Academic Average	95.00	5.04	92.14	5.05	1.93

[a]Bonferroni T_{crit} = 2.01, p = .05, df = 51, ● c = 1

Table 6. **Vandenberg AFB Initial Qualification Test (IQT) Scores for Enlisted Personnel: Women vs. Men**

	Women (n = 19)		Men (n = 82)		
	Mean	SD	Mean	SD	t ratio[a]
Academic Average	94.63	5.35	92.61	4.63	1.52

[a]Bonferroni T_{crit} = 1.98, p = .05, df = 99, ● c = 1

Summary of In-Training Results

With only one exception (student evaluation of instructor efficiency), no significant differences were found between men and women training for the Titan II career fields. Similar perceptions of the training environment in general and similar impressions concerning the training of Titan II specifics, coupled with equivalent test performance and attitudes about the missile field, all lead to the conclusion that Titan II training can be accomplished effectively for both men and women with the existing program. While this is an important finding, the more critical question is whether there is equivalency of performance and capability in the operational Titan II squadrons.

In-Unit Evaluations

After training, the female Titan II students were assigned to one of three bases: McConnell, Little Rock, or Davis-Monthan. After these women had been at their assigned unit a sufficient time to upgrade to alert status, they and randomly selected male co-workers were administered the Missile Launch Career Field Survey. The purpose of this survey was to assess their impressions of the operational environment, as well as their training capabilities, plans for the future, and any difficulties experienced in terms of physical requirements, job-stresses, treatment, and/or acceptance. For most of these women, this survey was administered after they had been in their assigned unit approximately 5 months, but for a few, because of time constraints, it was administered after 6 weeks. At the same time, the Missile Launch Career Field Supervisor Survey was administered to the women's supervisors to collect male/female comparisons in similar areas, with specific emphasis on motivation, performance under stress, and overall performance in the career field.

The results of the Missile Launch Career Field Survey are summarized in Table 7 and in Appendix C. Only on Item 27 ("How many women do you think can be assigned to your crew and still handle the physical requirements of the job?") was there a statistically significant difference between the male and female responses to this survey. The men reported that a mean of 2.4 women could be assigned to the four-member crew and still meet the physical requirements of the job. The women responded that a mean

of 3.4 women could be assigned. An inspection of the response distribution for this item, shown in Table 8, indicates that the majority of women (70%) felt that an all female crew could perform effectively, while the male response showed less certainty about how many women could be assigned. The largest proportion of men (39%) indicated that two women was the maximum, but the next largest group (26%) felt that an all female crew was capable of handling the job. Additional research on the physical requirements of the job may be warranted if other evidence indicates any problem in this area. It may be that the male response, in part, reflects the common stereotype of the woman as the physically weaker of the two sexes.

Table 7. **Operational Unit Titan II Missile Launch Career Field Survey**

Brief Description of Items	Women (n = 21)		Men (n = 109)		t ratio [a]
	Mean	SD	Mean	SD	
1. Rank	6.24	3.42	4.98	3.36	1.55
2. AFSC[b]					
3. AFB					
4. Sex					
5. Previous AFSC					
6. Source of information on MCF[c]					
7. Amount of information provided	2.90	1.26	3.51	1.14	-2.06
8. Accuracy of information provided	2.76	1.18	2.93	.88	- .63
9. Expected difficulty of missile training	2.14	1.06	2.41	.76	-1.11
10. Accuracy of expectations of training	2.71	.96	2.93	.97	- .97
11. Easier or harder than expected	2.33	.01	2.61	.96	-1.28
12. Expected difficulty of operational job	2.90	.89	2.50	.77	1.93
13. Accuracy of expectations of operational job	3.00	1.05	2.97	.79	.12
14. Operational job easier or harder than expected	2.52	.98	2.67	.87	- .65
15. Relationships between students in training					
16. Instructor-student relationship in training					
17. Supervisor treatment in operational wing					
18. Equal treatment for men and women					
19. Acceptance by peers in MCF	1.67	.66	1.27	.50	2.64
20. Facilities ratings	2.10	.62	2.20	.49	- .70
21. Clothing and equipment rating	1.14	.70	1.06	.57	1.11
22. Spouse's opinion of entering MCF					
23. Spouses's support of MCF					
24. Opinion of women in MCF	1.81	1.33	2.54	1.13	-2.36

Table 7. (*Continued*)

Brief Description of Items	Women (n = 21) Mean	Women (n = 21) SD	Men (n = 109) Mean	Men (n = 109) SD	t ratio [a]
25. Opinion of non-volunteers in MCF	4.19	1.03	3.81	1.02	1.55
26. Duration of duties if pregnant	2.48	1.54	2.42	1.39	.14
27. Number of women per crew	4.38	1.16	3.39	1.19	3.57*
28. Reason for entering MCF					
29. Plans to remain in MCF	2.43	1.21	2.71	1.27	- .96
30. Source of people for MCF					
31. How well trained	2.14	.85	2.07	.85	.35
32. Pressure of maintaining job proficiency	3.10	1.18	3.51	1.06	-1.48
33. Job pressure compared to previous career field					
34. Plans to make USAF a career prior to MCF	2.14	1.24	1.81	.91	1.20
35. Plans to make USAF a career now in MCF	2.71	1.42	2.53	1.49	.53
36. Plans to stay in USAF after MCF training commitment	3.05	1.66	2.73	1.60	.82

Note. For a complete listing of each item and the corresponding response options, see Appendix C.

[a]Bonferroni $T_{crit} = 3.12$, $p = .05$, $df = 127$, # c = 22.

[b]These items, (2 to 6, 15 to 18, 22, 23, 28, 30, & 33), are not amenable to T-Test comparisons. See Table C1, Appendix C.

[c]MCF = Missile Career Field.

*$p < .05$.

Table 8. **Women and the Physical Requirements of the Titan II Job**
(Question 27: "How many women do you think can be assigned to your crew and still handle the physical requirements of the job?")

	Zero	One	Two	Three	Four	Total
Women (f)[a]	1	1	2	2	15	21
(%)[b]	5	5	10	10	70	100
Men (f)	7	15	43	16	28	109
(%)	6	14	39	15	26	100

[a](f): frequency.

[b](%): percentage.

On all other items, men and women were found to be in agreement, sharing similar perceptions, difficulties, and experiences in the operational missile squadron environment. It is interesting to note that no gender differences were found regarding co-worker relationships, treatment or acceptance within the squadron, spouse support or opinion, or career and future plans. Overall, there is much similarity among the men and women assigned to the Titan career field.

The Missile Launch Career Field Supervisor Survey was administered at three levels within the squadrons: (a) to first-line (direct) supervisors of Titan II launch crews (n = 30), (b) to squadron

operations officers (n = 6), and (c) to squadron commanders (n = 4). The results of this survey are summarized in Table 9. Items 1 through 4 identify rank, Air Force base, supervisory level, and whether the respondent supervised both men and women. Item 5 concerned the number of women that should be assigned to a four-member launch crew. A statistical test (chi square) revealed no significant trend in the response to this item, indicating that supervisory opinion on this issue was quite divided. Similarly, on Item 6, which concerned whether the number of women on a launch crew should be limited, no statistically significant trend was found. Again, it would appear that supervisory opinion concerning this issue was divided. However, among those supervisors who advocated on Item 6 limitation on the assignment of women to launch crews, the majority cited the physical requirements of the job as the reason. On Item 7, which concerned the number of women who should be assigned to a missile maintenance team, the majority of the supervisors (53%) had no opinion. Concerning whether there should be limits in the assignment of women to maintenance teams (Item 8), again a statistical test revealed no significant trend. As found previously, among those supervisors who on Item 8 advocated limits, the majority cited physical requirements of the job as the constraining factor. These responses appear to indicate that an appraisal of the physical aspects of these jobs does warrant some attention. If it is found that these jobs are physically taxing, then better definitions of the strength and stamina requirements would aid in refining the assignment of both men and women to the missile career fields. On Item 9, which concerned the training for missile crew duty, a statistically significant trend was found indicating that supervisors believed that men and women were equally well trained. On Item 10, which concerned the comparative motivation of men and women, no significant trend was found, which indicates that supervisors held varied opinions on this comparison. Similarly, on Item 11, which compared the performance of men and women under the stress of missile crew duty, no significant trend was found, which indicates that opinion was again quite varied. Finally, on Item 12, which compared the overall performance of men and women in a missile crew, a statistically significant trend was found, with a majority of the supervisors rating the male and female overall performance as equal.

Table 9. **Missile Launch Career Field Supervisor Survey**

Question		Responses						
1. Rank		E5	O1	O2	O3	O4	O5	O6
	Number	1	1	11	15	1	9	2
	Percentage	2.5	2.5	27.5	37.5	2.5	22.5	5
2. Location		Davis-Monthan			McConnell		Little Rock	
	Number	19			10		11	
	Percentage	47.5			25		27.5	
3. Supervisory level		Direct Supervisor of Titan II Crew			Squadron Operations Officer		Squadron Commanders	
	Number	30			6		4	
	Percentage	75			15		10	
4. Do you supervise men and women?		Yes			No			
	Number	28			9			
	Percentage	75.7			24.3			
5. How many women should be assigned to a launch crew?		0	1	2	3	4	No Opinion	
	Number	8	11	9	1	4	7	
	Percentage	20	27.5	22.5	2.5	10	17.5	

χ^2 = 9.86 (not significant, abbreviated as n.s.)

Table 9. (*Continued*)

Question		Responses					
6. Should the number of women on a missile launch crew be limited?		No	Yes	Yes, Physical Requirements	Yes, Scheduling Pregnancy	Yes, Other	
	Number	13	24	16	2	6	
	Percentage	35.1	64.8	43.2	5.4	16.2	
$\chi^2 = 3.28$ (n.s.)							
7. How many women should be assigned to a missile maintenance team?		0	1	2	3	4	No Opinion
	Number	5	9	4	1	0	21
	Percentage	12.5	22.5	10	2.5	0	52.5
Note. χ^2 not calculated because most supervisors indicated no opinion on this item.							
8. Should the number of women on a missile maintenance team be limited?		No	Yes	Yes, Physical Requirements	Yes, Scheduling Pregnancy	Yes, Other	
	Number	11	28	20	0	8	
	Percentage	28.2	71.9	51.2	0	20.5	
$\chi^2 = 7.4$ (n.s.)							
9. How would you evaluate the training of men and women for missile crew duty?		Equal	Women Better	Men Better	No Opinion		
	Number	30	4	2	4		
	Percentage	75	10	5	10		
$\chi^2 = 25.99$ (significant)							
10. Are men and women equally motivated for missile crew duty?		Equal	Women Better	Men Better	No Opinion		
	Number	22	10	5	3		
	Percentage	55	25	12.5	7.5		
$\chi^2 = 12.37$ (n.s.)							
11. Compare male/female performance under stress of missile crew duty.		Equal	Women Better	Men Better	No Opinion		
	Number	17	2	12	9		
	Percentage	42.5	5	30	22.5		
$\chi^2 = 11.27$ (n.s.)							

Table 9. (*Concluded*)

Question		Responses			
12. Compare overall male/female performance on a missile crew.		Equal	Women Better	Men Better	No Opinion
	Number	21	3	12	4
	Percentage	52.5	7.5	30	10

χ^2 = 13.5 (significant)

[a] χ^2 values evaluated for significance $\alpha = .05$ per family of comparisons; i.e., each individual comparison was evaluated at α / number of total comparisons ($p < .007$).

[b] Calculation of χ^2 did not include respondents who indicated *no opinion*.

As a normal part of operational unit procedures, upgrade classes are conducted, and the average scores from the women and men who took these classes at the same time are presented in Table 10. Tests of statistical significance were not conducted on these data because only group, not individual, scores were available. However, inspection of these scores leads to the conclusion that the scores from females were quite comparable to those from males and that no substantial differences exist on these in-unit measures of operational missile duty.

Table 10 **Titan II Evaluation Scores in Assigned Unit Upgrade Classes: Men vs. Women**

AFB	Evaluation Type	Officers				Enlisted			
		Men	n	Women	n	Men	n	Women	n
Davis-Monthan	EWO[a]	97.1	13	94.4	4	NA	13	NA	2
	SE[b]	4.2[c]	13	3.9	4	3.9	13	3.3	2
Little Rock	EWO	98.1	9	95.3	3	NA	11	NA	0
	SE	3.0	9	3.8	3	3.0	11	0	0
McConnell	EWO	96.9	23	100.0	1	NA	3	NA	4
	SE	3.9	27	4.1	4	2.5	23	3.7	4
All Bases	EWO	97.2	45	95.4	8	NA	0	NA	0
	SE	3.8	49	3.9	11	3.0	47	3.6	6

[a] Emergency War Order.
[b] Standardization Evaluation.
[c] Maximum Score 5.0.

IV. CONCLUSIONS

Strong similarities were found between men and women regarding their performance, attitude, and perception of the training environment. Only on their rating of instructor efficiency, where men rated their instructors better than did women, was there any statistically significant difference. It is possible that the gender difference between instructors and the women might have had some impact here but, in any case, this did not appear to represent any meaningful problem nor to alter the outcome of training for women.

In the in-unit data from the operational missile squadrons, one area in which men and women crew members did differ was the number of women that each group indicated could be assigned to a crew if that crew was to be able to handle all the physical requirements of the job. It appears that a large number of men felt that assigning more than two women to a four-member crew would decrease the capability of that crew to handle the physical requirements. Responses on the supervisor survey indicate that supervisors also had some concern about this issue. These results point to a need to examine the physical requirements of these AFSCs, particularly if the number of women entering these fields increases substantially.

Probably the most important finding of this study is the small number of differences found between men and women entering the Titan II career fields. Generally, men and women crew members were found to be quite alike in terms of performance and evidenced similar attitudes about training, capabilities, acceptance by peers and supervisors, and plans concerning the Air Force.[1] Supervisors generally rated men and women equally, but additional research on the physical aspects of the job appears warranted, as well as continued monitoring of comparative performance. From these preliminary data, it would appear that women can be introduced into the Titan II Missile Launch Career Field and will become successful and effective missile crew members. However, due to the small number of women in the career field at this time, these results should be considered tentative until more women have entered the career field and have been at their duty assignment for a longer period of time.

[1]Questions concerning plans to remain in the Air Force brought some interesting data to light concerning the Titan II career field as a whole. These data and a discussion of them are in Appendix E.

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APPENDIX A: TECHNICAL TRAINING STUDENT SURVEY ITEM MEANS AND STANDARD DEVIATIONS

Table A1. **Titan II Technical Training Student Survey: Women vs. Men**

	Item	Women (n = 17) Mean	Women (n = 17) SD	Men (n = 49) Mean	Men (n = 49) SD	t[a]
1a.	Job security[b]	3.69	1.30	3.25	.98	1.24
b.		4.44	.89	4.00	1.01	1.65
2a.	Faster promotion	3.13	1.31	3.33	1.06	- .55
b.		4.13	.96	4.29	.82	- .60
3a.	Participate in decisions	2.69	1.08	3.25	.98	-1.84
b.		3.75	1.18	4.06	.89	- .97
4a.	Challenging assignments	3.56	1.32	3.25	1.04	.85
b.		4.50	.63	4.10	.75	2.09
5a.	Responsibility	3.81	1.33	3.42	1.05	1.07
b.		4.13	.89	4.08	.77	.20
6a.	Competence	4.31	.87	4.04	.90	1.07
b.		4.56	.89	4.44	.71	.49
7a.	Good civilian job	2.88	1.45	2.50	1.27	.94
b.		3.88	1.45	3.77	1.19	.27
8a.	Base of choice	2.63	1.31	2.48	1.25	.40
b.		3.75	1.06	3.83	1.08	- .26
9a.	*Off-duty privileges*	2.13	1.20	2.58	1.25	-1.29
b.		2.75	1.34	3.40	1.01	-1.78
10a.	Freedom in work	3.06	1.24	2.85	1.24	.59
b.		3.31	.95	3.33	1.00	- .07
11a.	Respect from peers	2.94	1.39	3.27	.98	- .88
b.		3.06	1.00	3.31	1.11	- .84
12a.	Attention paid to your ideas	3.25	1.29	3.54	1.05	- .81
b.		3.50	.89	3.77	.83	-1.07
13a.	Educational growth	3.88	1.09	3.75	1.04	.42
b.		4.38	.72	4.40	.74	- .10
14a.	Help other students	3.44	.96	3.98	.89	-1.98
b.		3.69	.70	3.83	1.00	- .62
15a.	Grades and test performance	4.00	1.03	4.15	.92	- .52
b.		4.13	.96	4.40	.74	-1.03
16a.	Receive compliments	3.56	1.15	3.56	.97	.00
b.		3.13	1.09	3.46	1.13	-1.04
17a.	Fewer trivial duties	2.25	1.34	2.54	1.13	- .78
b.		3.00	1.32	3.42	1.33	-1.10
18a.	Fewer trivial assignments	2.56	1.21	2.63	1.23	- .20
b.		3.31	1.45	3.48	1.18	- .42
19a.	Self-respect	4.10	1.17	4.21	1.01	- .06
b.		4.63	.72	4.69	.75	- .29
20a.	Use of abilities	3.88	1.02	3.60	1.07	.94
b.		4.50	.73	4.25	.93	1.10
21a.	Challenging assignments	3.31	1.25	2.94	1.17	1.04
b.		3.75	1.13	3.46	.94	.93

Table A1. (*Continued*)

	Item	Women (n = 17) Mean	Women (n = 17) SD	Men (n = 49) Mean	Men (n = 49) SD	t[a]
22a.	Special interests	3.13	1.59	2.88	1.30	.57
b.		3.75	1.13	4.08	.94	-1.05
23a.	Early completion of training	2.56	1.55	1.96	1.22	1.41
b.		3.25	1.48	3.13	1.25	.29
24a.	Spare time	3.19	1.22	2.98	1.12	.61
b.		3.81	1.05	3.60	.89	.72
25a.	Less critical	3.81	1.22	3.21	1.17	1.72
b.		3.63	1.26	3.35	.98	.81
26a.	Honor graduate	4.25	1.06	3.92	1.29	1.02
b.		3.00	1.41	3.81	1.02	-2.12
27.	Effective	2.71	1.16	3.69	1.18	-2.91
28.	Knowledgeable	2.06	1.20	1.76	.90	.92
29.	Interesting	2.35	1.32	3.43	1.04	-2.98
30.	Dependable	2.41	1.33	1.98	.90	1.21
31.	Organized	2.71	1.40	3.86	1.17	-2.96
32.	Confident	3.12	1.45	3.98	1.13	-2.16
33.	Convincing	2.29	1.21	1.80	.96	1.17
34.	Prepared	3.00	1.46	4.04	1.19	-2.58
35.	Intelligent	2.24	1.15	1.78	.80	1.19
36.	Efficient	2.41	1.28	3.84	1.05	-4.04*
37.	Encourages	2.53	1.33	1.96	.87	1.60
38.	Praises	2.53	1.18	3.37	.86	-2.63
39.	Fair	2.24	1.15	1.90	1.04	1.06
40.	Patient	3.00	1.46	4.02	1.11	-2.56
41.	Considerate	2.41	1.33	1.98	.85	1.21
42.	Helpful	2.88	1.36	4.10	1.14	3.23
43.	Friendly	2.18	1.29	1.43	.71	2.12
44.	Supportive	2.35	1.27	1.76	.85	1.73
45.	Compliments	2.76	1.20	3.59	.79	-2.59
46.	Cooperative	2.18	1.01	1.84	.87	1.21
47.	Student (S) hostility	4.12	1.22	3.35	1.48	2.07
48.	S relations	3.82	1.19	3.94	1.01	-2.43
49.	S helpfulness	3.47	1.28	3.47	1.10	.00
50.	S cooperation	3.29	1.19	2.92	1.35	.88
51.	S quarrels	3.88	1.41	3.33	1.36	1.36
52.	S tensions	3.35	1.37	2.73	1.31	1.58
53.	S work together	3.82	1.42	3.02	1.39	1.96
54.	S help in course	3.88	1.05	4.00	.87	- .41
55.	S unliked	3.41	1.46	3.41	1.29	.00
56.	S take advantage	2.00	1.37	2.14	1.27	- .36
57.	S equal opportunity	4.00	1.06	3.98	1.05	.07
58.	S discipline	2.59	1.28	2.31	1.00	.80
59.	S supervision	2.18	1.07	1.96	.79	.76
60.	S opinions	3.35	1.41	3.63	.95	- .91
61.	S suggestions	3.29	1.21	3.94	.77	-2.02
62.	S participation	4.24	.75	4.35	.78	- .50
63.	S participate oppose	4.35	.70	4.37	.95	- .09

Table A1. (*Continued*)

	Item	Women (n = 17) Mean	Women (n = 17) SD	Men (n = 49) Mean	Men (n = 49) SD	t[a]
64.	S recommendations	3.12	1.27	3.63	1.05	-1.45
65.	S judgment	2.76	1.30	2.41	.96	.99
66.	S helplessness	3.18	1.51	2.51	1.10	1.64
67.	S influence	3.18	1.33	2.88	1.25	.79
68.	S study schedule	3.29	1.26	3.57	1.17	- .78
69.	S spare time	2.88	1.41	3.41	1.15	-1.36
70.	S idea expression	2.06	.97	1.88	.97	.64
71.	S independence	2.76	1.20	2.49	1.12	.79
72.	Perfection pressure	2.18	1.38	2.10	.92	.22
73.	Military atmosphere	2.35	1.27	1.67	.75	2.03
74.	Squadron duties	2.76	1.72	1.84	1.25	1.97
75.	Training accomplished against personal values	2.06	1.25	1.76	.90	.89
76.	Expectations of instruction	2.18	1.19	2.35	1.18	- .50
77.	Organization	2.71	1.21	2.08	1.02	1.87
78.	Training objectives	2.41	1.33	2.22	1.01	.52
79.	Performance standards	2.00	1.00	2.18	.93	- .63
80.	Course emphasis	3.59	1.46	2.84	1.31	1.83
81.	Training agreement	3.12	1.32	2.78	1.37	.88
82.	S workload	2.41	.80	2.49	1.00	- .32
83.	Classwork quantity	2.76	1.03	2.37	1.01	1.32
84.	Military bearing	2.29	1.05	1.86	1.04	1.42
85.	Training hours	2.24	.75	2.39	.95	- .65
86.	Training requirements	2.71	1.31	2.65	1.07	.17
87.	Training equipment adequate	3.00	1.46	2.94	1.21	.15
88.	Training equipment available	2.06	1.20	2.35	1.15	- .85
89.	Training equipment time	2.29	1.26	2.39	1.20	- .28
90.	Evaluation validity	2.71	1.16	2.86	1.06	- .46
91.	Study guides	2.71	1.40	2.12	.95	1.57
92.	Detail attention	3.59	1.42	2.88	1.27	1.78
93.	Course materials	2.65	1.22	2.12	.99	1.57
94.	Course material validity	2.53	1.01	2.10	1.14	1.43
95.	Course material difficulty	2.00	1.27	2.29	1.00	-.83
96.	Class progress	2.12	1.17	1.98	1.03	-2.62
97.	Class temperature	2.41	1.00	3.10	1.14	-2.31
98.	Sleeping facilities	3.00	1.32	3.90	1.08	-2.47
99.	Class lighting	3.71	.99	3.76	.85	- .18
100.	Class chairs	2.59	1.18	3.04	.98	-1.38
101.	Seating arrangement	3.35	1.00	3.73	.67	-1.42
102.	Class break length	3.12	1.22	3.63	1.05	-1.50
103.	Class break number	3.29	1.26	3.88	.75	-1.77
104.	Study facilities	3.06	1.25	3.24	.97	- .53
105.	Class ventilation	2.71	1.26	3.41	.89	-2.06
106.	Test time	3.71	1.05	3.96	.84	- .87
107.	Class noise	3.47	.94	3.61	.81	- .53
108.	Class work space	3.65	.93	4.02	.78	-1.43
109.	Supplementary materials	3.29	1.10	3.92	.81	-2.11
110.	Recreation facilities	3.53	1.18	3.73	.97	- .61

Table A1. (*Concluded*)

	Item	Women (n = 17) Mean	Women (n = 17) SD	Men (n = 49) Mean	Men (n = 49) SD	t[a]
111.	Study time	3.58	.94	3.70	1.20	- .79
112.	Test review	3.35	.93	3.84	.87	-1.85
113.	Difficult material	2.71	1.05	3.43	1.10	-2.35
114.	Shifts	3.18	1.07	3.47	1.04	-1.01
115.	Feel about technical training	3.18	.95	3.47	.79	-1.10
116.	Career field	4.00	1.17	3.88	.95	.37
117.	Air Force	3.76	1.03	4.24	.85	-1.68
118.	Preferred career	3.53	1.51	2.59	1.40	2.21
119.	Information about career	3.24	1.64	2.73	1.30	1.13
120.	Technical training on career	3.76	1.25	3.53	1.14	.65
121.	Cross-train	2.65	1.50	3.18	1.36	-1.25

Note. For a complete listing of each item and the corresponding response options, see Figure 1 in main text.
[a]Bonferroni $T_{crit} = 3.79$, $p = .05$, $df = 60$, $\bullet c = 147$.
[b]Questions 1–26 contained two scales. Scale "a" is "If you perform well," and scale "b" is "How important to you."
*$p < .05$.

APPENDIX B: MISSILE CREW MEMBER SURVEY

A. BACKGROUND

1. Age

   (a) 17-20 years
   (b) 21-24 years
   (c) 25-28 years
   (d) 29 years or over

2. Sex

   (a) Male
   (b) Female

3. Current Grade/Rank

(a) O-1	(e) E-1
(b) O-2	(f) E-2
(c) O-3	(g) E-3
(d) O-4	(h) E-4

4. Previous DAFSC _____

5. Years on Active Duty

   (a) 0-4 years
   (b) 5-8 years
   (c) 9-12 years
   (d) 13 years or more

6. Geographic region of Last Duty Assignment

   (a) North Central (ND/SD/MN/MI/IL/NE/IA/IN/WI)
   (b) North East (ME/VT/NH/MA/CT/NY/PA/WV/VA/OH/MD/DE)
   (c) South East (MS/AL/GA/TN/NC/SC/FL)
   (d) South Central (KS/MO/AR/OK/TX/LA)
   (e) South West (CO/NM/AZ/UT/NV/CA)
   (f) North West (WA/OR/ID/MT/WY)
   (g) Overseas

MISSILE TRAINING

Please circle the number which best indicates the degree of learning difficulty which you experienced in each of the following areas of missile training:

1 - No difficulty
2 - Slight difficulty
3 - Moderate difficulty
4 - Extreme difficulty

ACADEMICS

7.	Tech Order Exercises	1	2	3	4
8.	Communications	1	2	3	4
9.	Launch and Checkout	1	2	3	4
10.	Complex Power	1	2	3	4

MISSILE PROCEDURES TRAINER (MPT)

12.	Readiness Monitoring	1	2	3	4
13.	Normal Procedures	1	2	3	4
14.	Emergency Procedures	1	2	3	4
15.	EWO Phase	1	2	3	4

16. How many hours of study did you spend per day outside the classroom?

(a) 0 to 1 hour
(b) 1 1/2 to 2 hours
(c) 2 1/2 to 3 hours
(d) 3 1/2 hours or more

17. How many total hours of remedial instruction in the MPT did you receive?

(a) 1/2 to 1 hour
(b) 2 to 3 hours
(c) 4 hours or more
(d) Didn't receive any remedial training in the MPT

18. How many total hours of remedial classroom training did you receive?

(a) 1/2 to 1 hour
(b) 2 to 3 hours
(c) 4 hours or more
(d) Didn't receive any remedial classroom instruction

Please rate the utility of the following items to your overall missile training process:

1 - Extremely valuable
2 - Moderately valuable
3 - Little value
4 - No value whatsoever
5 - No opinion or not used

19.	Technical Orders/Publications	1	2	3	4	5
20.	IQT Missile Safety Workbook	1	2	3	4	5
21.	MPT Study Guide	1	2	3	4	5
22.	IQT Academic Study Guide	1	2	3	4	5
23.	Missile Procedure Trainer	1	2	3	4	5
24.	Audio-Visual Training Devices	1	2	3	4	5
25.	Instructor's Teaching *Techniques*	1	2	3	4	5
26.	Instructor's Personality	1	2	3	4	5
27.	Exposure to More than One Instructor	1	2	3	4	5
28.	Support/Assistance from Other Students	1	2	3	4	5

Circle the number which best describes yourself as a missile trainee

Scale: 1 - Extremely good
2 - Good
3 - Above average
4 - Average
5 - Below average

29.	Your attitude toward the missile career field	1	2	3	4	5
30.	Your attitude toward missile instruction compared to that of other students	1	2	3	4	5

31.	Overall potential for becoming a competent missile combat crew member	1	2	3	4	5
32.	Possess background experience pertinent to missile training performance	1	2	3	4	5
33.	Overall performance as a missile crew member trainee	1	2	3	4	5
34.	Your attitude toward the quality of IQT instruction	1	2	3	4	5
35.	How did you perceive your acceptance by the instructors	1	2	3	4	5
36.	How did you perceive your acceptance by other students	1	2	3	4	5

SELF-EVALUATION OF MISSILE CAPABILITIES

Please indicate the importance of the following factors for you entering the missile career field

1 - Very important
2 - Somewhat important
3 - Unimportant

37.	Education opportunities	1	2	3
38.	Particular geographic area	1	2	3
39.	Career enhancement	1	2	3
40.	Increased responsibility	1	2	3
41.	Other (Specify)	1	2	3

Please describe yourself as a missile trainee in terms of the degree to which you possess these attributes

Scale: 1 - Possess this attribute to fullest degree
2 - Possess to moderate degree
3 - Lack this attribute completely

42.	Physical strength and endurance	1	2	3
43.	Crew coordination: quick reaction	1	2	3
44.	Ability to absorb technical information	1	2	3
45.	Mental alertness	1	2	3

46.	Resourcefulness/problem solving ability	1	2	3
47.	Attention to detail: thoroughness	1	2	3
48.	Prudent/praticality	1	2	3
49.	Patience	1	2	3
50.	Safety Consciousness	1	2	3

Please indicate the level of skill which you developed in each of the following crew member functions:

Scale: 1 - Excellent skill
2 - Moderate skill
3 - Limited skill
4 - No skill

ACADEMICS

51.	Tech Order exercises	1	2	3	4
52.	Communications	1	2	3	4
53.	Launch and checkout	1	2	3	4
54.	Complex power	1	2	3	4
55.	EWO procedures	1	2	3	4

MISSILE PROCEDURE TRAINER (MPT)

56.	Readiness monitoring	1	2	3	4
57.	Normal procedures	1	2	3	4
58.	Emergency procedures	1	2	3	4
59.	EWO phase	1	2	3	4

60. Are there any problems that appear to be unique to either sex? If yes, please explain.

APPENDIX C: MISSILE LAUNCH CAREER FIELD SURVEY

The Air Force Human Resources Laboratory has been tasked by AFMPC to evaluate certain aspects of Air Force missile career fields. This survey has been developed as a part of this evaluation. Please answer all questions as honestly as possible since the results of this survey will have an impact upon your career field. Your suggestions are encouraged, and a "Remakrs" section is included at the end of the survey. If you are not currently on a Missile Combat Crew, respond based upon your experiences from when you were on one.

1. What is your present rank?
   a. 0-1
   b. 0-2
   c. 0-3
   d. 0-4
   e. 0-5
   f. E-1
   g. E-2
   h. E-3
   i. E-4
   j. E-5
   k. E-6

2. What is your present AFSC?
   a. 1821F
   b. 1823
   c. 1825
   d. 316X0F
   e. 541X0E
   f. Other—please list_____

3. Air Force base assigned:
   a. Davis-Monthan
   b. McConnell
   c. Little Rock
   d. Other—please list_____

4. Sex
   a. female
   b. male

5. What was your AFSC *immediately before entering the missile career field. Indicate none if you had no* previous AFSC.
   a. Please list _____
   b. None

6. What was the one source of information which influenced you most to enter the missile career field?
   a. CBPO
   b. Air Force Times
   c. Base newspaper or bulletin
   d. Recruiter
   e. ROTC detachment
   f. Another Air Force member but not from any of the above groups—please list relationship to you:_
   g. Other—please list_____

7. How much information did this source provide?
   a. All necessary information
   b. Considerable information
   c. Some information
   d. Little information
   e. Almost no information

8. How accurate was the information from this source?
   a. Extremely accurate
   b. Very accurate
   c. Partly accurate/partly inaccurate
   d. Very inaccurate
   e. Totally inaccurate

9. How difficult did you expect missile training to be?
   a. Very difficult
   b. Difficult
   c. Neither difficult nor easy
   d. Easy
   e. Very easy

10. How accurate were your expectations of the missile career field training?
   a. Extremely accurate
   b. Very accurate
   c. Partly accurate/partly inaccurate
   d. Very inaccurate
   e. Totally inaccurate

11. Was missile career field training easier or harder than you expected?
   a. Much easier
   b. Easier
   c. Not easier or harder
   d. Harder
   e. Much harder

12. How difficult did you expect the operational missile job to be?
   a. Very difficult
   b. Difficult
   c. Neither difficult nor easy
   d. Easy
   e. Very easy

13. How accurate were your expectations of an operational wing in the missile career field compared to the information you obtained prior to reporting?
   a. Extremely accurate
   b. Very accurate
   c. Partly accurate/partly inaccurate
   d. Very inaccurate
   e. Totally inaccurate

14. Is your operational job easier or harder than you expected?
   a. Much easier
   b. Easier
   c. Not easier or harder
   d. Harder
   e. Much harder

15. Which statement best summarizes relationships between students in missile training?
    a. Some students treated others better on the basis of individual preference.
    b. Some students treated same-sex students better.
    c. Some students treated opposite-sex students better.
    d. Students treated each other equally.

16. What statement best summarizes instructor-student relationships in missile training?
    a. Some students were treated better than others on the basis of individual preference.
    b. Some female students were given a harder time than male students.
    c. Some male students were given a harder time than female students.
    d. Students were treated equally.

17. Now that you are in an operational missile wing, what statement best summarizes the treatment of you and your peers by your supervisors?
    a. Some people are treated better than others on the basis of individual preference.
    b. Some men are treated better.
    c. Some women are treated better.
    d. Everyone is treated equally by supervisors.

18. Do you feel that men and women receive equal treatment in your career field?
    a. Yes.
    b. No, men receive better treatment (Optional: please explain in remarks.).
    c. No, women receive better treatment (Optional: please explain in remarks.).

19. Have you been accepted by your peers in your career field as an equally qualified member of a Missile Crew Team?
    a. All of the time
    b. Most of the time (Optional: please explain in remarks.)
    c. Sometimes (Optional: please explain in remarks.)
    d. Never (Optional: please explain in remarks.)

20. Rate the facilities (availability of restrooms, working environment, communication, transportation, etc.) that the Air Force provides for you to do your job.
    a. Excellent—everything I need
    b. Good—most everything I need
    c. Adequate
    d. Inadequate (Optional: please explain in remarks.)
    e. Unacceptable (Optional: please explain in remarks.)

21. Rate special clothing/equipment (headgear, weapons belt, uniforms, footwear, etc.) that the Air Force provides for you to do your job.
    a. Excellent—everything I need
    b. Good—most everything I need
    c. Adequate
    d. Inadequate (Optional: please explain in remarks.)
    e. Unacceptable (Optional: please explain in remarks.)

22. Was your spouse in favor of your entering the missile career field or opposed to it?
    a. Very much in favor
    b. In favor
    c. No opinion
    d. Opposed
    e. Very much opposed
    f. NA—unmarried

23. Now that you are in an operational wing, is your spouse supportive of your participation in the missile career field or against it?

a. Very supportive
b. Somewhat supportive
c. Neither supportive nor against it
d. Against it
e. Very much against it
f. NA—unmarried

24. Are you for or against women being assigned to the missile career field?

a. Very much in favor
b. In favor
c. No opinion
d. Opposed
e. Very much opposed

25. Are you for or against non-volunteers being assigned to the missile career field?

a. Very much in favor
b. In favor
c. No opinion
d. Opposed
e. Very much opposed

26. Assuming there is no medical risk, how long do you think a co-worker could perform the duties of your job if pregnant?

a. Not at all once pregnancy is discovered
b. Through 3 months of pregnancy
c. Through 6 months of pregnancy
d. Through 8 months of pregnancy
e. Through 8 1/2 months of pregnancy
f. Through the entire term of pregnancy

27. How many women do you think can be assigned to your crew and still handle the physical requirements of the job?

a. 0
b. 1
c. 2
d. 3
e. 4

28. What was your most important reason for entering the missile career field?

a. The challenge of the job
b. To enter the operational Air Force
c. To change from my previous career field
d. I have always liked missiles.
e. The Air Force assigned me to missiles.
f. Other—please list_____

29. What are your plans for remaining in the missile career field?

a. I plan to stay as long as the Air Force lets me.
b. I plan to stay 2 or 3 tours and then cross-train.
c. I plan to stay only one tour and then cross-train.
d. I plan to get out of missiles as soon as possible.

30. From what source do you think the Air Force should obtain people for your career field?
    a. Accessions (ROTC, OTS, AFA for officers; Basic for enlisted)
    b. Active Duty
    c. Some combination of accessions and active duty
    d. No opinion
    e. Other—please list_____

31. How well trained are you for your job?
    a. Extremely well trained
    b. Well trained
    c. Adequately trained
    d. Inadequately trained (Optional: please explain in remarks.
    e. Poorly trained (Optional: please explain in remarks.)

32. Is the pressure of maintaining job proficiency greater or less than you expected?
    a. Much less
    b. Less
    c. Neither less nor greater
    d. Greater
    e. Much greater

33. Is the pressure of your job greater or less than your previous career field?
    a. Much less
    b. Less
    c. Neither less nor greater
    d. Greater
    e. Much greater
    f. NA—I had no previous career field.

34. Did you intend to make the Air Force a career prior to entering the missile career field?
    a. Definitely yes
    b. Probably yes
    c. Unsure
    d. Probably no
    e. Definitely no

35. Do you intend to make the Air Force a career now that you are in missiles?
    a. Definitely yes
    b. Probably yes
    c. Unsure
    d. Probably no
    e. Definitely no

36. How many more years do you plan to stay in the Air Force after your current assignment?
    a. 0
    b. 4
    c. 8
    d. 12
    e. 16 or more

37. List the three most positive aspects, in order, and three most negative aspects, in order, of your career field.

a. Most positive_____

b. Second most positive_____

c. Third most positive_____

d. Most negative_____

e. Second most negative_____

f. Third most negative_____

Remarks:

Table C1. Missile Launch Career Field Survey: Women vs Men

Question		Response Scale													
1. Rank		O-1		O-2		O-3		O-4		O-5					
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%				
	Women	0	0	3	4	6	7	1	1	0	0				
	Men	15	18	15	18	24	29	6	7	13	16				
		E-1		E-2		E-3		E-4		E-5		E-6		E-7	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	0	0	0	0	0	0	8	17	2	4	1	2	0	0
	Men	0	0	1	2	10	21	10	21	8	17	4	8	3	6
2. AFSC		1821F		1823		1825		316X0F		541X0E		Other			
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%		
	Women	0	0	4	3	5	4	6	5	5	4	1	1		
	Men	5	4	14	11	29	22	21	16	16	12	24	18		

χ^2 = 2.97 (not significant, abbreviated n.s.[a])

3. AFB		Davis-Monthan		McConnell		Little Rock	
		Nr	%	Nr	%	Nr	%
	Women	11	8	3	2	7	5
	Men	38	29	27	21	44	34

χ^2 = 4.53 (n.s.)

4. Sex		Nr	%
	Women	21	16
	Men	109	84

5. AFSC prior to MCF		Please List		None	
		Nr	%	Nr	%
	Women	13	68	6	32
	Men	36	33	72	67

χ^2 = 9.23 (n.s.)

Table C1. (*Continued*)

Question	Response Scale									
6. Source of information on Missile Career Field (MCF)	CBPO		AF Times		Base Newspaper or Bulletin					
	Nr	%	Nr	%	Nr	%				
Women	3	2	2	2	1	1				
Men	10	7	2	2	0	0				
	Recruiter		ROTC		AF Member		Other			
	Nr	%	Nr	%	Nr	%	Nr	%		
Women	3	2	2	2	6	5	4	3		
Men	16	12	28	21	13	10	40	31		
$\chi^2 = 7.07$ (n.s.)										
7. Amount of info provided	All		Considerable		Some		Little		Almost No	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	2	10	8	38	4	19	4	19	3	14
Men	2	2	19	17	39	36	21	19	28	26
8. Accuracy of info provided	Extremely Accurate		Very Accurate		Partly Accurate		Very Inaccurate		Totally Inaccurate	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	3	14	5	24	10	48	0	0	3	14
Men	4	4	26	24	60	55	13	12	6	6
9. Expected difficulty *of missile training*	Very Difficult		Difficult		Neither		Easy		Very Easy	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	7	33	6	29	7	33	0	0	1	5
Men	13	12	43	39	48	44	5	5	0	0

Table C1. (*Continued*)

Question		Response Scale									
10.	Accuracy of expectations of training	Extremely Accurate		Very Accurate		Partly Accurate		Very Inaccurate		Totally Inaccurate	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	2	10	7	33	7	33	5	24	0	0
	Men	8	7	22	20	58	53	12	11	9	8
11.	Training easier or harder than expected	Much Easier		Easier		Not Easier		Harder		Much Harder	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	4	19	8	38	7	33	2	10	0	0
	Men	13	12	38	35	38	35	18	17	2	2
12.	Expected difficulty of operational job	Very Difficult		Difficult		Neither		Easy		Very Easy	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	1	5	5	24	11	52	3	14	1	5
	Men	9	8	43	39	52	48	3	3	2	2
13.	Accuracy of expectations of operational job	Extremely Accurate		Very Accurate		Partly Inaccurate		Very Inaccurate		Totally Inaccurate	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	1	5	6	29	8	38	4	19	2	10
	Men	6	6	14	13	69	63	17	16	3	3
14.	Operational job easier or harder than expected	Much Easier		Easier		Not Easier		Harder		Much Harder	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	4	19	5	24	9	43	3	14	0	0
	Men	8	7	38	35	48	44	12	11	3	3

Table C1. (*Continued*)

Question		Response Scale							
15. Relationships between students		Individual Preferences		Same-Sex Better		Opposite-Sex Better		Equal Treatment	
		Nr	%	Nr	%	Nr	%	Nr	%
	Women	11	8	1	1	0	0	9	7
	Men	47	36	0	0	3	2	59	45
χ^2 = 1.25 (n.s.)									
16. Instructor-student relationship in training		Individual Preferences		Women Given Hard Time		Men Given Hard Time		Equal Treatment	
		Nr	%	Nr	%	Nr	%	Nr	%
	Women	6	5	2	2	0	0	13	10
	Men	21	16	1	1	6	5	81	62
χ^2 = 3.59 (n.s.)									
17. Supervisor treatment in operational wing		Individual Preferences		Men Treated Better		Women Treated Better		Equal Treatment	
		Nr	%	Nr	%	Nr	%	Nr	%
	Women	14	11	0	0	0	0	7	5
	Men	56	43	0	0	15	12	38	29
χ^2 = 2.33 (n.s.)									
18. Equal treatment for men and women		Yes		No, men get better treatment		No, women get better treatment			
		Nr	%	Nr	%	Nr	%		
	Women	17	13	2	2	1	1		
	Men	61	47	2	2	46	36		
χ^2 = 9.46 (n.s.)									
19. Acceptance by peers in MCF		All of the time		Most of the time		Sometimes		Never	
		Nr	%	Nr	%	Nr	%	Nr	%
	Women	9	43	10	48	2	10	0	0
	Men	83	76	23	21	3	3	0	0

Table C1. (*Continued*)

Question		Response Scale									
20. Facilities ratings		Excellent		Good		Adequate		Inadequate		Unacceptable	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	3	14	13	62	5	24	0	0	0	0
	Men	4	4	79	72	26	24	0	0	0	0
21. Clothing and equipment ratings		Excellent		Good		Adequate		Inadequate		Unacceptable	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	3	14	10	48	8	38	0	0	0	0
	Men	15	14	73	67	21	19	0	0	0	0
22. Spouse's opinion of entering MCF		Very much in favor		In favor		No opinion		Opposed		Very much opposed		NA	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	2	1	2	1	1	1	1	1	0	0	15	12
	Men	3	2	17	13	38	29	5	4	6	5	40	31

$\chi^2 = 9.70$ (n.s.)

23. Spouse's support of MCF		Very Supportive		Supportive		Neither		Against it		Very much Against it		NA	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	3	2	2	1	0	0	2	1	0	0	14	11
	Men	24	18	16	12	18	14	9	7	12	9	30	23

$\chi^2 = 10.78$ (n.s.)

24. Opinion of women in MCF		Very much in favor		In Favor		No Opinion		Opposed		Very much Opposed	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	13	62	4	19	1	5	1	5	2	10
	Men	20	18	38	35	30	28	15	14	6	6

Table C1. (*Continued*)

Question		Response Scale									
25.	Opinion of non-volunteers in MCF	Very much in favor		In Favor		No Opinion		Opposed		Very much Opposed	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	4		0	0	3	14	7	33	10	48
	Men	0	0	15	14	24	22	37	34	33	30
26.	Duration of duties if pregnant	Not at all		3 months		6 months		8 months		8 1/2 months		Entire Term	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	6	29	8	38	2	10	3	14	0	0	2	10
	Men	32	29	32	29	29	27	7	6	2	2	6	5
27.	Number of women per crew	0		1		2		3		4	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	1	5	1	5	2	10	2	10	15	70
	Men	7	6	15	14	43	39	16	15	28	26
28.	Reason for entering MCF	Job Challenge		Enter Operational USAF		Change Career Fields		Like Missile Field		USAF Assigned AFSC		Other	
		Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
	Women	4	3	5	4	5	4	1	1	2	1	4	3
	Men	11	8	27	21	4	3	3	2	41	32	23	18

$\chi^2 = 11.58$ (n.s.)

		As long as possible		2-3 tours		One tour		Get out ASAP	
29.	Plans to remain in MCF	Nr	%	Nr	%	Nr	%	Nr	%
	Women	6	29	6	29	3	14	6	29
	Men	28	26	21	19	17	16	43	39

Table C1. (*Continued*)

Question	Response Scale									
30. Source of people for MCF	Accessions		Active Duty		Combination of Each		No Opinion		Other	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	1	1	3	2	14	11	1	1	2	1
Men	5	4	12	9	69	53	16	12	7	5

$\chi^2 = 0.68$ (n.s.)

31. How well trained	Extremely Well		Well		Adequately		Inadequately		Poorly	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	5	24	9	13	6	29	1	5	0	0
Men	28	26	51	47	25	23	4	4	1	1

32. Pressure of maintaining job proficiency	Much Less		Less		Neither		Greater		Much Greater	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	3	14	2	10	8	38	6	29	2	10
Men	5	5	11	10	37	34	35	32	21	19

33. Job pressure compared to previous career	Much Less		Less		Neither		Greater		Much Greater		NA	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	9	43	4	19	5	24	2	10	1	5	0	0
Men	52	48	31	28	21	19	5	5	0	0	0	0

$\chi^2 = 1.31$ (n.s.)

34. Plans to make Air Force a career prior to MCF	Definitely Yes		Probably Yes		Unsure		Probably No		Definitely No	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	5	24	6	29	3	14	4	19	3	14
Men	41	37	18	17	18	17	15	14	17	16

35. Plans to make Air Force a career now in MCF	Definitely Yes		Probably Yes		Unsure		Probably No		Definitely No	
	Nr	%	Nr	%	Nr	%	Nr	%	Nr	%
Women	7	33	1	5	2	10	6	29	5	24
Men	35	32	23	21	14	13	11	10	26	24

[a] χ^2 values evaluated for significance at $\alpha = .05$ per family of comparisons, i.e., each individual comparison was evaluated at α = number of total comparisons ($p < .0036$)

APPENDIX D: MISSILE LAUNCH CAREER FIELD SUPERVISOR SURVEY

1. What is your present rank?
   a. E—4
   b. E—5
   c. E—6
   d. E—7
   e. E—8
   f. E—9
   g. O—1
   h. O—2
   i. O—3
   j. O—4
   k. O—5
   l. O—6

2. Air Force base assigned:
   a. Davis-Monthan
   b. McConnell
   c. Little Rock

3. What level supervisor are you?
   a. Direct supervisor of a Titan II launch crew
   b. Direct supervisor of a Titan II maintenance team
   c. Squadron Operations Officer
   d. Squadron Commander
   e. None of the above. (Specify:_____)

4. Do you supervise men and women in Titan II operations?
   a. Yes
   b. No

5. How many women should be assigned to a missile launch crew?
   a. None
   b. One
   c. Two
   d. Three
   e. Four
   f. No opinion

6. Why should the number of women on a missile launch crew be limited?

   a. There should be no limitations.
   b. Because of the physical requirements of the job
   c. To avoid scheduling problems due to pregnancies
   d. Other (Please specify:_____)

7. How many women should be assigned to a missile maintenance team?

a. None
b. One
c. Two
d. Three
e. Four
f. No opinion

8. Why should the number of women on missile maintenance teams be limited?
a. There should be no limitations.
b. Because of the physical requirements of the job
c. To avoid scheduling problems due to pregnancies
d. Other (Please specify:_____)

9. How would you evaluate the training of men and women for missile crew duty?
a. Men and women are equally well trained.
b. Women seem better trained than men.
c. Men seem better trained than women.
d. None of the above. (Please place your remarks in the comments section.)

10. Are men and women equally motivated for missile crew duty?

a. Men and women are equally motivated.
b. Women seem more motivated than men.
c. Men seem more motivated than women.
d. None of the above. (Please place your remarks in the comments section.)

11. Observations of individual performance under stress of missile crew duty reveals:

a. Stress decreases the performance of men and women equally.
b. Stress decreases the performance of women more than the performance of men.
c. Stress decreases the performance of men more than the performance of women.
d. None of the above. (Please place your remarks in the comments section.)

12. Comparison of male and female overall performance on a missile crew indicates:

a. Males' and females' overall performance is equal.
b. Women seem to perform better than men.
c. Men seem to perform better than women.
d. None of the above. (Please place your remarks in the comments section.)

COMMENTS:

APPENDIX E: SUPPLEMENTARY TITAN II CAREER INTENT DATA

The Tables E1 and E2 are taken from the Missile Launch Career Field Survey and appear to show a shift in career plans of Air Force members after entering the Titan II career field. It is interesting to note that all but one of the Junior Officers (Second Lieutenant, First Lieutenant, and Captain) indicated that before entering the Titan II career field they were either unsure or were intending to make the Air Force a career (see Table E1). However, Table E2 shows that after entering the Titan II career field, 29% say that they no longer intend to make the Air Force a career.

The enlisted personnel show a similar shift with only 15% reporting that before entering the Titan II career field they *did not intend to make the Air Fo. e a career.* However, after entering the Titan II career field, 44% responded that they no longer were planning to make the Air Force a career.

These data along with the numerous written comments that were received with the survey may indicate some problems in job satisfaction in the Titan II career field. This study was not planned or directed toward the measurement of job satisfaction, however, and Tables E1 and E2 are merely included as possible beneficial supplementary data.

Table E1. **Air Force Career Plans Prior to Entering the Titan II Career Field**

Question 34: "Did you intend to make the Air Force a career prior to entering the missile career field?"

Military Rank		Definitely Yes	Probably Yes	Unsure	Probably No	Definitely No	Total
Second	(f)[a]	5	4	6	0	0	15
Lieutenant	(%)[b]	33	27	40	0	0	
First	(f)	8	8	1	0	1	18
Lieutenant	(%)	44	44	6	0	6	
Captain	(f)	21	7	2	0	0	30
	(%)	70	23	7	0	0	
Major	(f)	5	2	0	0	0	7
	(%)	71	29	0	0	0	
Lieutenant	(f)	10	1	2	0	0	13
Colonel	(%)	77	7	15	0	0	
Airman	(f)	0	0	1	0	0	1
	(%)	0	0	100	0	0	
Airman	(f)	2	2	4	2	0	10
First Class	(%)	20	20	40	20	0	
Sergeant	(f)	2	5	7	4	0	18
	(%)	11	28	39	22	0	
Staff	(f)	1	6	2	1	0	10
Sergeant	(%)	10	60	20	10	0	
Technical	(f)	4	0	1	0	0	5
Sergeant	(%)	80	0	20	0	0	
Master	(f)	1	0	0	0	0	1
Sergeant	(%)	100	0	0	0	0	

[a] (f) = frequency
[b] (%) = percentage

Table E2. **Air Force Career Plans After Entering the Titan II Career Field**

Question 35: "Do you intend to make the Air Force a career now that you are in missiles?"

Military Rank		Definitely Yes	Probably Yes	Unsure	Probably No	Definitely No	Total
Second Lieutenant	(f)[a]	3	3	5	2	2	15
	(%)[b]	20	20	33	13	13	
First Lieutenant	(f)	5	4	3	0	6	18
	(%)	28	22	17	0	33	
Captain	(f)	12	7	3	6	2	30
	(%)	40	23	10	20	7	
Major	(f)	6	0	1	0	0	7
	(%)	86	0	14	0	0	
Lieutenant Colonel	(f)	13	0	0	0	0	13
	(%)	100	0	0	0	0	
Airman	(f)	0	0	1	0	0	1
	(%)	0	0	100	0	0	
Airman First Class	(f)	0	2	3	2	3	10
	(%)	0	20	30	20	30	
Sergeant	(f)	1	2	3	6	6	18
	(%)	6	11	17	33	33	
Staff Sergeant	(f)	1	5	2	2	0	10
	(%)	10	50	20	20	0	
Technical Sergeant	(f)	3	1	0	0	1	5
	(%)	60	20	0	0	20	
Master Sergeant	(f)	2	0	1	1	0	4
	(%)	50	0	25	25	0	

[a](f): frequency.
[b](%): percentage.


DATE:
ILME